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BOTANICAL SERIES. VOL. II, NO. 4.

STUDIES IN THE GENUS CITHAREXYLUM

BY

JESSE MORE GREENMAN,
Assistant Curator, Department of Botany.

CHARLES FREDERICK MILLSPAUGH,
Curator, Department of Botany.

CHICAGO, U. S. A.
January, 1907.

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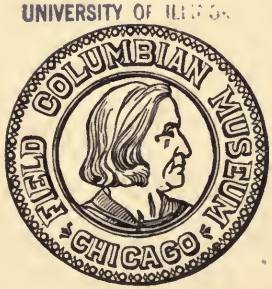

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STUDIES IN THE GENUS CITHAREXYLUM.

BY J. M. GREENMAN.

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The present paper embodies the results of a study of the material representing the genus Citharexylum in the collections of John Donnell Smith, the Gray Herbarium, and the herbarium of the Field Museum of Natural History. It is intended as preliminary to a synoptical revision of the group, which the writer already has well under way. The generic limitations are those of Bentham & Hooker, f. Genera Plantarum, ii, 1149, and of Briquet in Engler & Prantl, Die natürlichen Pflanzenfamilien, iv. Ab. 3a, 159; and the Latin form of the generic name is that adopted by Linnæus in the first edition of the Species Plantarum, notwithstanding the earlier use of the Greek termination. The writer desires to express his thanks to Mr. John Donnell Smith for the loan of his excellent suite of specimens of this genus, and to Prof. B. L. Robinson of the Gray Herbarium, where the greater part of this work was done.

Citharexylum Bourgeauianum, sp. nov.

Tree: branches somewhat 4-angled, striate, alternately flattened at the nodes; the ultimate branches evenly pubescent with short spreading hairs: leaves opposite, ovate to oblong-lanceolate, including the petiole 6 to 18 cm. long, 1.5 to 6 cm. broad, usually acuminate, acute or obtuse, entire, glabrous above except for a slight puberulence on the sunken midrib, velvety pubescent beneath, narrowed at the base into a canaliculate 1 to 2 cm. long petiole; midrib and lateral nerves rather prominent on the under surface: inflorescence terminating the stem and branches in elongated racemes, occasionally somewhat paniculately disposed, 2 dm. or less in length, hirsutish pubescent; bracts subulate, 1 to 2 mm. long, equaling or slightly exceeding the stoutish pedicels, soon recurved and more or less persistent: calyx somewhat tubular or deeply cup-shaped, about 5 mm. long, crenately 5-lobed, hirtellous on the outer surface and slightly puberulent within: corolla subsalverform, white; tube equaling or barely exceeding the calyx, pubescent in the throat; lobes oblong, 3 mm. long, pubescent on both surfaces: fruit not seen.—Mexico. State of Vera Cruz: region of Orizaba, *Bourgeau*, no. 2525 (hb. Gray) type; Orizaba, *Botteri*, nos. 880 (hb. Gray), 1092 (hb. Gray, hb. John Donnell Smith, and hb. Field Mus.).

Citharexylum crassifolium, sp. nov.

Stem terete, covered with a grayish bark; ultimate branchlets subtetragonal, compressed at the nodes, striate, pubescent: leaves opposite, petiolate, oblong to oblong-lanceolate, including the petiole 5 to 13.5 cm. long, 2 to 5 cm. broad, obtuse or retuse, entire, revolute-margined, narrowed at the base into the petiole, dull green and minutely scabrellous above, conspicuously reticulate-nerved and pubescent beneath; petioles 0.5 to 1 cm. long, stout, 2 to 5 mm. thick, canaliculate, puberulent: racemes terminal and solitary or several and paniculately disposed, short-hirsute; bracts minute, triangular, acute, about equaling the pedicels: flowers in anthesis 4 to 5 mm. long: calyx narrowly campanulate, 2 to 2.5 mm. long, 5-angled in cross section, shallowly sinuate, 5-denticulate, externally minutely pubescent: corolla tubular-funnelform, about twice as long as the calyx; tube externally glabrous, pubescent within, especially in the throat; lobes subequal, ovate-rotund, 1 to 1.5 mm. long and broad, pubescent on both surfaces: perfect stamens 4, the fifth reduced to a minute staminodium: ovary and style glabrous: mature fruit unknown.—*C. cinereum*, Donnell Smith, Enum. Pl. Guat. ii. 60 (1891), and vi. 33 (1903), not L.—GUATEMALA. Department of Baha Vera Paz, in forests of Santa Rosa, altitude 1520 m., July, 1887, *H. von Tuerckheim*, no. 1308 (hb. John Donnell Smith). This species has been confused with *C. cinereum*, L., from which it is readily separated on leaf-character alone. The leaves in *C. crassifolium* are thicker or more leathery in texture, dull green and not conspicuously reticulate-veined above, and furthermore the calyx is smaller than in *C. cinereum*, L.

Citharexylum Donnell-Smithii, sp. nov.

Tree: stem covered with grayish bark; ultimate branches terete, compressed at the nodes, reddish-brown, striate, dotted with scattered lenticels: leaves opposite or rarely subalternate, petiolate, lanceolate to lance-oblong, rarely ovate, including the petiole 0.5 to 2.1 dm. long (mostly 1 to 2 dm.), 2 to 5.5 cm. broad, usually acuminate and acute, occasionally obtuse, entire, slightly if at all revolute-margined, rather gradually narrowed at the base into the petiole, green above, a little paler and inconspicuously punctate beneath, glabrous on both surfaces, bearing 1 to several small glands at the junction of blade and petiole and an occasional gland on the under side of the lamina; midrib and lateral nerves rather prominent especially on the under side of the leaf; petioles 1 to 3 cm. in length: inflorescence terminal; racemes 0.5 to 3.5 dm. in length, solitary or several and paniculately disposed, glabrous; bracts minute, subulate, mostly shorter than the 2 to 3 mm. long pedicels: flowers numerous, about 6 mm. long in anthesis: calyx tubular-campanulate, approximately 3 mm. long, strongly 5-angled in cross section, sinuately 5-dentate, ciliolate, otherwise glabrous: corolla about twice exceeding the calyx, tubular-campanulate, subequally 5-lobed, externally glabrous, pubescent within; lobes oblong about 2 mm. long, rounded at the apex, pubescent on the upper or inner surface, glabrous on the outer or lower surface: perfect stamens 4, slightly projecting beyond the tube of the corolla: ovary and style

glabrous: fruit drupaceous, oblong-spherical, 6 to 7 mm. long, bluish or purplish-black; pyrenæ submeniscoidal, 5 to 6 mm. long, 3 to 3.5 mm. broad, smooth.—*C. caudatum*, Donnell Smith, Prim. Fl. Costaricensis ii. 209 (1898) in part, not L. *C. villosum*, Donnell Smith, Enum. Pl. Guat. ii. 60 (1891), not Jacq.—GUATEMALA. Pecaya, Department of Amatitlan, altitude 1675 m., March, 1890, *John Donnell Smith*, no. 1879 (hb. Gray, and hb. John Donnell Smith) type. COSTA RICA. Plantations of the Café near Aserri, August, 1889, *Tonduz*, no. 1274 (hb. John Donnell Smith); along the highway en route to San Pedro, 18 November, 1889, *Tonduz*, no. 1419 (hb. John Donnell Smith); Volcano of Barba, altitude 2000 m., 10 January, 1890, *Tonduz*, no. 1741 (hb. John Donnell Smith); road to Santa Maria de Dota, altitude 1492 m., April, 1893, *Tonduz*, no. 7855 (hb. John Donnell Smith); San José, altitude 1135 m., January, 1895, *Tonduz*, no. 9623 (hb. John Donnell Smith); San Pedro del Mojon, altitude 1100 m., January, 1895, *Pittier & Tonduz*, no. 9624 (hb. John Donnell Smith); environs of the Hacienda Belmira, near Santa Maria de Dota, altitude 1450 m., *Tonduz*, no. 11,646 (hb. John Donnell Smith).

Citharexylum Emrickianum, sp. nov.

Branches sharply 4-angled, striate, glabrous, reddish-brown: leaves opposite, petiolate, ovate, 6 to 12 cm. long, 3.5 to 6 cm. broad, obtuse or submucronate at the apex, entire, abruptly contracted at the base and slightly decurrent on the petiole, bi-glandular at the junction of petiole and blade, glabrous on both surfaces, slightly paler and minutely punctate beneath; petioles 1 to 3 cm. long: inflorescence in axillary pedunculate racemes, 8 to 16 cm. in length; bracts minute, subulate: flowers numerous, 5 to 6 mm. long during anthesis: calyx tubular-campanulate, 3 mm. long, 5-denticulate, 5 angled in cross section, externally glabrous, pubescent within and ciliolate about the orifice: corolla about twice as long as the calyx, pubescent in the throat, otherwise glabrous; lobes subrotund: drupe oblong-elliptic, 6 to 8 mm. long; pyrenæ deeply concave on the ventral side, dorsally somewhat obliquely corrugated.—MEXICO. State of Michoacan: Hacienda Coahuayula, February, 1901, *Dr. G. M. Emrick*, no. 179 (hb. Field Mus.).

Citharexylum hexangulare, sp. nov.

Stem sharply 6-angled, striate, glabrous: leaves verticillate, 3 in a whorl, petiolate, lanceolate to oblong-lanceolate, including the petiole 8 to 18 cm. long, 2.5 to 5.5 cm. broad, obtuse or acuminate and submucronate-acute, entire, narrowed at the base into a petiole, pale green and glabrous on both surfaces, bearing 1 or 2 glands at the junction of petiole and blade, rather strongly reticulate-veined; midrib and lateral veins rather prominent; petioles 1 to 1.5 cm. in length, glabrous: inflorescence terminating the stem in flabellate panicles; the individual spicate racemes of the inflorescence 1 to 2 dm. in length, glabrous or inconspicuously puberulent; bracts minute, subulate, equaling or slightly exceeding the pedicels, persistent: flowers on jointed pedicels, rather crowded, 5 to 6 mm. long in anthesis:

calyx tubular-campanulate, about 3.5 mm. long, 5-toothed, 5-nerved and with intermediate smaller subanastomosing veins, ciliolate, otherwise glabrous: corolla tubular-campanulate, pubescent on both surfaces; tube slightly exceeding the calyx; lobes somewhat unequal, ovate-rotund to broadly oblong, 2 to 3 mm. long, nearly or quite as broad, spreading or reflexed: perfect stamens 4, the fifth reduced to a mere staminodium, included: ovary glabrous; style pubescent: mature fruit unknown.—*C. reticulatum*, Donnell Smith, Enum. Pl. Guat. vi. 34 (1903), not HBK.—GUATEMALA. Cubilquitz, Department of Alta Vera Paz, altitude 350 m., September, 1901, *H. von Tuerckheim*, no. 7765 (hb. John Donnell Smith, and hb Gray). This number was distributed in the exsiccatæ of John Donnell Smith under the name "*Citharexylum reticulatum*, H. B. et K.," from which species, however, the one here described differs in having larger leaves disposed in whorls of three, and a paniculate inflorescence with longer individual racemes.

Citharexylum Kerberi, sp. nov.

Stem terete to subtetragonal, covered with a light gray or whitish bark, glabrous; ultimate branchlets reddish brown, pubescent: leaves opposite, obovate to elliptic-lanceolate, including the petiole 5 to 15 cm. long, 2 to 6 cm. broad, rounded to short-acuminate and acute at the apex, narrowed at the base into a 0.5 to 1 cm. long petiole, hispidulous above, densely pubescent beneath, usually biglandular at the junction of blade and petiole; midrib and lateral nerves somewhat sunken from the upper surface and rather prominent beneath: inflorescence terminating the stem and branches in elongated spicate racemes 13 to 18 cm. in length; rhachis hirsute-pubescent; bracts subulate, equaling or somewhat exceeding the short pedicels, usually persistent: flowers scattered, 12 to 15 mm. in length: calyx tubular, 6 to 7 mm. long, subulately 5-dentate, pubescent on both surfaces: corolla salver-shaped, about twice exceeding the calyx, puberulent at the base of the lobes in the throat and in the upper part of the tube, otherwise glabrous; tube 8 to 10 mm. long; lobes obovate to obovate-cuneate, 3 to 4.5 mm. long, two-thirds as broad: perfect stamens 4, included, the fifth stamen much reduced, often to a mere staminodium: ovary and style glabrous: mature fruit not seen.—MEXICO. Without definite locality, *E. Kerber*, no. 430 (hb. John Donnell Smith) This species passes under the native name of "Aceitunillo."

Citharexylum macradenium, sp. nov.

Shrub or small tree?, glabrous throughout: branches 4-angled, covered with a light gray or whitish cortex; ultimate branchlets striate, reddish brown, deciduously atomiferous glandular: leaves opposite or rarely subalternate, lanceolate to elliptic-lanceolate, 7 to 15 cm. long, 2 to 3.5 cm. broad, acute, entire, narrowed at the base into a 1 to 2 cm. long petiole, minutely punctate, dark green above, paler beneath, bearing at the base of the blade at its junction with the petiole commonly 2 large elliptic-oblong swollen glands especially prominent on the upper side of the leaf; lateral nerves arcuate, 6 to 9

on either side of the midrib: inflorescence terminating the stem and branches in simple or somewhat paniculately disposed racemes; bracts minute, subulate, 1 mm. long, about equaling the pedicels: calyx cupulate, 2.5 mm. high, subtruncate, minutely 5-denticulate, 5-angled in cross section: corolla tubular-funnelform, white: tube 4 mm. long, externally essentially glabrous, pubescent in the throat; lobes oblong, 2 mm. long, puberulent on both surfaces: stamens included: style puberulent: fruit not seen.—*C. caudatum*, Donnell Smith, Enum. Pl. Guat. v. 70 (1899), not L., and Prim. Fl. Costaricensis ii, 209 (1898) in part, not L.—COSTA RICA. Province of San José, La Palma, altitude 1460 m., August, 1898, *Tonduz*, no. 7407 (hb. Gr., hb. John Donnell Smith, and hb. Field Mus.) exsiccatæ J. Donnell Smith, i. e., no. 12,502 hb. Nat. Costa Rica; forêts du Rancho Flores, altitude 2043 m., 22 February, 1890, *Pittier*, no. 2132 (hb. John Donnell Smith).

Citharexylum punctatum, sp. nov.

Shrub?: stem and branches terete, covered with a grayish bark; ultimate branchlets subtetragonal, cinereous-puberulent: leaves elliptic-oblong to subobovate, including the petiole 1 to 2 cm. long, 5 to 12 mm. broad, usually short acuminate or somewhat pungent-tipped, entire or occasionally bearing 1 or 2 teeth on either margin, glabrous on both surfaces, conspicuously impressed-punctate above, minutely punctate under a lens beneath, narrowed at the base into a short petiole: inflorescence terminating the stem and branches in short few-flowered puberulent racemes, 1.5 cm. or less in length; bracts minute, triangular, acute, shorter than the stoutish pedicels: flowers 2 to 6 in each raceme, 7 to 8 mm. long in anthesis: calyx tubular-campanulate, 3 to 4 mm. long, sinuately 5-toothed, 5-angled in cross section, ciliolate, otherwise glabrous: corolla subsalverform, 5 to 6 mm. long, externally glabrous, pubescent in the upper part of the tube and in the throat; lobes oblong, about one-third the length of the tube: stamens 5, equal, included; filaments adnate to the corolla-tube: ovary and style glabrous; mature fruit drupaceous, slightly oblong, 10 to 12 mm. long, purplish-black in the dried state; pyrenæ oblong, about 7 mm. long, deeply concave on the ventral or inner surface, conspicuously corrugated or somewhat irregularly furrowed longitudinally over the dorsal surface.—BOLIVIA. Without definite locality, *Bang*, no. 1917 (hb. Gray, hb. John Donnell Smith, and hb. Field Mus.), distributed as "*Citharexylum ilicifolium* H.B.K.," from which, however, it differs in having smaller and entirely glabrous leaves with an entire, not spinose-dentate, margin. The striking impressed punctation of the leaves of *C. punctatum* serves as an excellent diagnostic character.

Citharexylum recurvatum, sp. nov.

Stem terete, covered with a gray or grayish-brown bark; ultimate branches terete, compressed at the nodes, striate, glabrous: leaves opposite, petiolate, lanceolate-oblong to subovate, including the petiole 4 to 11.5 cm. long, 1.5 to 3.5 cm. broad, obtuse (rarely emar-

ginate) to acute, entire, revolute-margined, narrowed at the base into the petiole, dark green above, paler and minutely punctate beneath, glabrous on both surfaces; midrib and lateral nerves rather prominent, especially beneath; glands 1 to 4 at the junction of blade and petiole, not conspicuous; petioles 0.5 to 2 cm. long, glabrous: inflorescence terminating the stem and branches in simple rarely branched glabrous racemes, becoming strongly recurved and 1 to 2 cm. in length; pedicels persistent, 2 to 3 mm. long, jointed above the middle, equaling or somewhat exceeding the minute subulate bracts: flowers small: calyx tubular-campanulate, about 3 mm. long, shallowly sinuate, minutely 5-denticulate, glabrous: corolla subequally 5-lobed: perfect stamens 4, included: ovary and style glabrous: mature fruit an oblong drupe, 5 to 7 mm. in length, bluish-black; pyrenæ elliptic-oblong, 4 to 5 mm. long, 3 to 3.5 mm. broad, 2 mm. thick, smooth.—*C. villosum*, Donnell Smith, Enum. Pl. Guat. iv. 123 (1895), not Jacq.—COSTA RICA. Rio Reventado, Prov. Cartago, altitude 1830 m., April, 1888, *Juan J. Cooper*, no. 5889 (hb. John Donnell Smith, and hb. Gray). PANAMA. Without locality, *Duchassing* (hb. Gray).

Citharexylum Schottii, sp. nov.

Stem covered with a grayish bark and dotted with numerous lenticels; branchlets slightly 4-angled, striate, brownish, glabrous: leaves opposite, petiolate, elliptic-lanceolate, including the petiole 4 to 11 cm. long, 1 to 3 cm. broad, obtuse or submucronate-acute, entire, gradually narrowed at the base into a slender petiole, glabrous on both surfaces or very minutely hirtellous above, usually reddish-brown beneath in the dried state, commonly bearing two glands at the junction of petiole and blade; petioles 1 to 2 cm. long: inflorescence a terminal panicle; bracts subulate, equaling or slightly exceeding the short jointed pedicels: flowers numerous: calyx tubular-campanulate, during anthesis about 2.5 mm. high, sinuately 5-dentate, 5-angled in cross section, becoming somewhat saucer-shaped in the fruiting stages: corolla about twice as long as the calyx, externally glabrous or essentially so, pubescent in the throat; tube exceeding the calyx, obconical; lobes oblong-rotund, pubescent on the upper or inner surface, ciliolate: fruit oblong-obovate, 5 to 7 mm. long, drupaceous; pyrenæ oblong, about 5 mm. long, the inner surface concave, the outer convex and smooth or slightly furrowed towards the bidentate base.—*C. quadrangulare*, Millsp. Field Columb. Mus. Bot. Ser. i. 386, not Jacq.—YUCATAN. Near Merida, 28 July, 1865, *Dr. A. Schott*, no. 575 (hb. Field Mus.) type; Izamal, *Dr. G. F. Gaumer*, no. 765 *bis* (hb. Field Mus.); Chichankanab, *Dr. G. F. Gaumer*, no. 1944 (hb. Field Mus.).

The species here proposed differs from *C. quadrangulare*, Jacq. in its more profuse inflorescence, smaller fruit, etc. Superficially *C. Schottii* resembles *C. glabrum*, Greenm., but from this species again it differs in having the spicate branches of the panicle erect or ascending, and in having also a proportionately shorter corolla-tube, and the lobes of the corolla glabrous or essentially so on the outer surface.

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